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Specification and Drawings, as originally filed, with Application for Patent Serial No:
2,421,389, on March 10, 2003, by **GILLES DUMONT**, for "Rotary Plant Growing
Apparatus".

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ROTARY PLANT GROWING APPARATUS

The present invention relates to a plant growing apparatus of the type wherein a cylindrical drum like structure rotates about a light source.

The field of growing plants using lamps is well known in the art and many systems have been proposed. In order to overcome this, in Canadian Patent 2,343,254, there is disclosed a system wherein the plant apparatus is in the form of a drum which rotates about a light source to thereby maintain a constant distance between the plants and the lamp. The drum is rotated and there is provided a water feeding basin located at the bottom into which the plants, in a pot, are provided with nutrients.

While such an apparatus has indeed been found to be suitable for the purpose of growing plants, the structure of the same is somewhat complex.

One of the problems of the prior art systems is the distance between the light source and the plants which are growing. As there must be sufficient room for the plants to grow, the light source must be a certain distance away from the plants. While this is suitable when the plants are substantially fully grown, as the light intensity is sufficient for leaves which are near the light source, it does present a problem when the plants are very young since the light intensity diminishes substantially with an increasing distance therefrom. A further problem inherent in such apparatuses is the feeding of the plants. As aforementioned, when the structure rotates and a portion thereof is immersed in the liquid, a problem of dripping of the liquid over the base and even outside the base structure arises.

According to the present invention, there is provided an apparatus which overcomes at least some of the problems associated with such prior art apparatuses.

An embodiment of the present invention is illustrated in the accompanying drawings to which reference will now be made and in which:

Figure 1 is a perspective view of one embodiment of an apparatus according to the present invention wherein the apparatus is in its compact smaller configuration;

Figure 2 is a perspective view of the apparatus of Figure 1 in an expanded configuration;

Figure 3 is a side elevational view of the apparatus of Figure 2;

Figure 4 is a plan view of one of the rig segments used in the rotating drum structure;

Figure 5 is a perspective view thereof;

Figure 6 is a side elevational view illustrating securement of two ring segments when the apparatus is in its smaller compact configuration;

Figure 7 is a view similar to Figure 6 when the ring is in its full expanded configuration; and

Figure 8 is a perspective view of a portion of the structure showing provision of means for supplying nutrients and fluid to the plant containers.

Referring to the drawings in greater detail, and by reference characters thereto, there is illustrated a rotary drum plant growing apparatus which is generally designated by reference numeral 10.

Apparatus 10 includes first and second side frames 12 and 20. First side frame 12 includes a base member 14 with a pair of diagonal supports 16 and 18 extending upwardly from opposed ends thereof. Similarly, side frame 20 includes a base 22 having diagonal supports 24 and 26. Extending between side frames 12 and 20 is a longitudinal frame

member 28.

The apparatus includes a plurality of transversely extending containers generally designated by reference numeral 32 which are mounted on a rotating ring generally designated by reference numeral 34. Ring 34 is comprised of a plurality of ring segments generally designated by reference numeral 36. In the embodiment of Figure 1, there are six ring segments 36 while in the embodiment of Figure 2, there are provided eight ring segments.

The ring segments 36 are illustrated in greater detail in Figures 4 to 7 and reference will now be had thereto. Each ring segment includes a base 38 and a pair of opposed side walls 40 and 42. As may be seen in Figure 4, base 38 includes a plurality of rectangular apertures 44 and a plurality of projections 46.

Located at one end of each ring segment 36, and secured to the side walls 40 and 42, is a connecting portion 48. As may be seen in Figures 5, 6 and 7, each connecting portion includes a lower aperture 50 and an upper slot 52 for reasons which will become apparent hereinbelow. A plurality of pins 53 are provided at the other end of side walls 40 and 42.

Each transversely extending container 32 includes a base portion 54 which has a plurality of slot like apertures 56 formed therein. From one side of base 54, there is provided an upwardly extending wall 58 having an inwardly extending flange 60. At the other side of base 54, there is provided a second side wall 62 also having an inwardly extending flange 64. The arrangement is such that plant growth medium may be placed within the transverse container 32.

The apparatus 10 includes an electric motor 66 driving a belt 68 which in turn

drives a drive roller 70 in contact with ring 34. It will be noted that drive roller 70 includes a pair of lateral guides 72 to ensure that the rotating ring does not move sidewardly. Similarly, there are provided guide rollers generally designated by reference numerals 74 and 75 and which are not driven, but which are useful to stabilize the rotating drum. For purposes of clarity, some of the drive rollers do not have their connecting structure shown; it will be understood that appropriate connection to frame members will be provided.

Connected to side frame 20 is a vertically extending arm 76 and which carries a support arm 78. This is utilized to support a weir 82 which has a plurality of dispensing members 80 secured thereto and which dispensing members 80 are designed to provide a fluid (water and/or nutrients) through slot apertures 56 to the plant growth medium within transversely extending containers 32.

The arrangement is such that the ring 34 may be comprised of, in the illustrated embodiment, six or eight ring segments. When the ring is formed of six segments as shown in Figure 1, the apparatus is more compact and thus the plants within transversely extending container 32 will be closer to the light source which is in the center of the drum. When expanded, the drum assumes a more circular configuration and the plants will be further spaced from the light source. As will be seen, the arrangement is such that pins 53 fit within lower aperture 50 and upper slot 52. The configuration of upper slot 52 allows for movement of the pin therein.

The light source has not been shown for purposes of clarity but it will be understood that a conventional light source such as is illustrated in Canadian Patent 2,343,254 may be utilized.

It will be understood that the above described embodiments are for purposes of illustration only and that changes or modifications may be made thereto without departing from the spirit and scope of the invention.

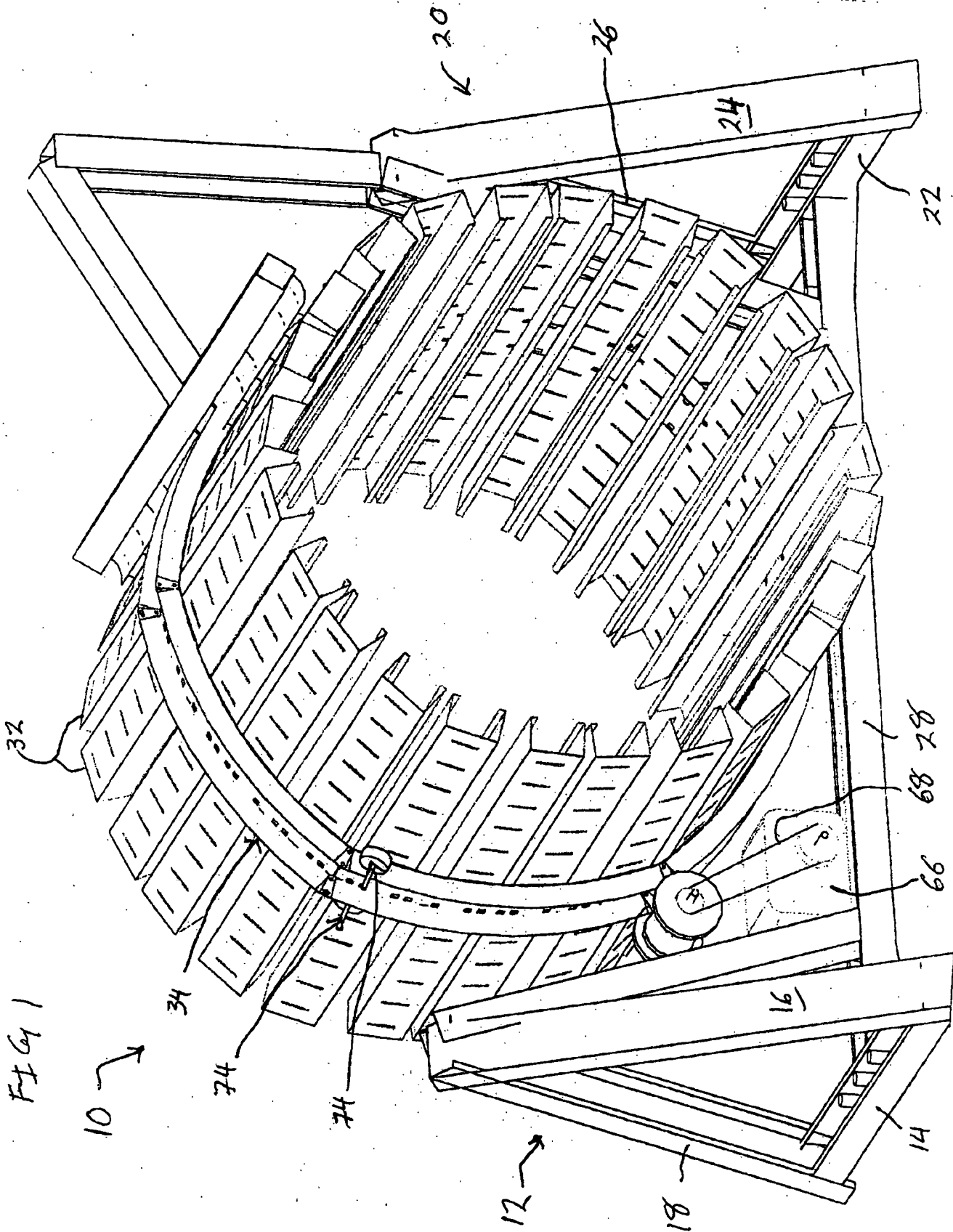
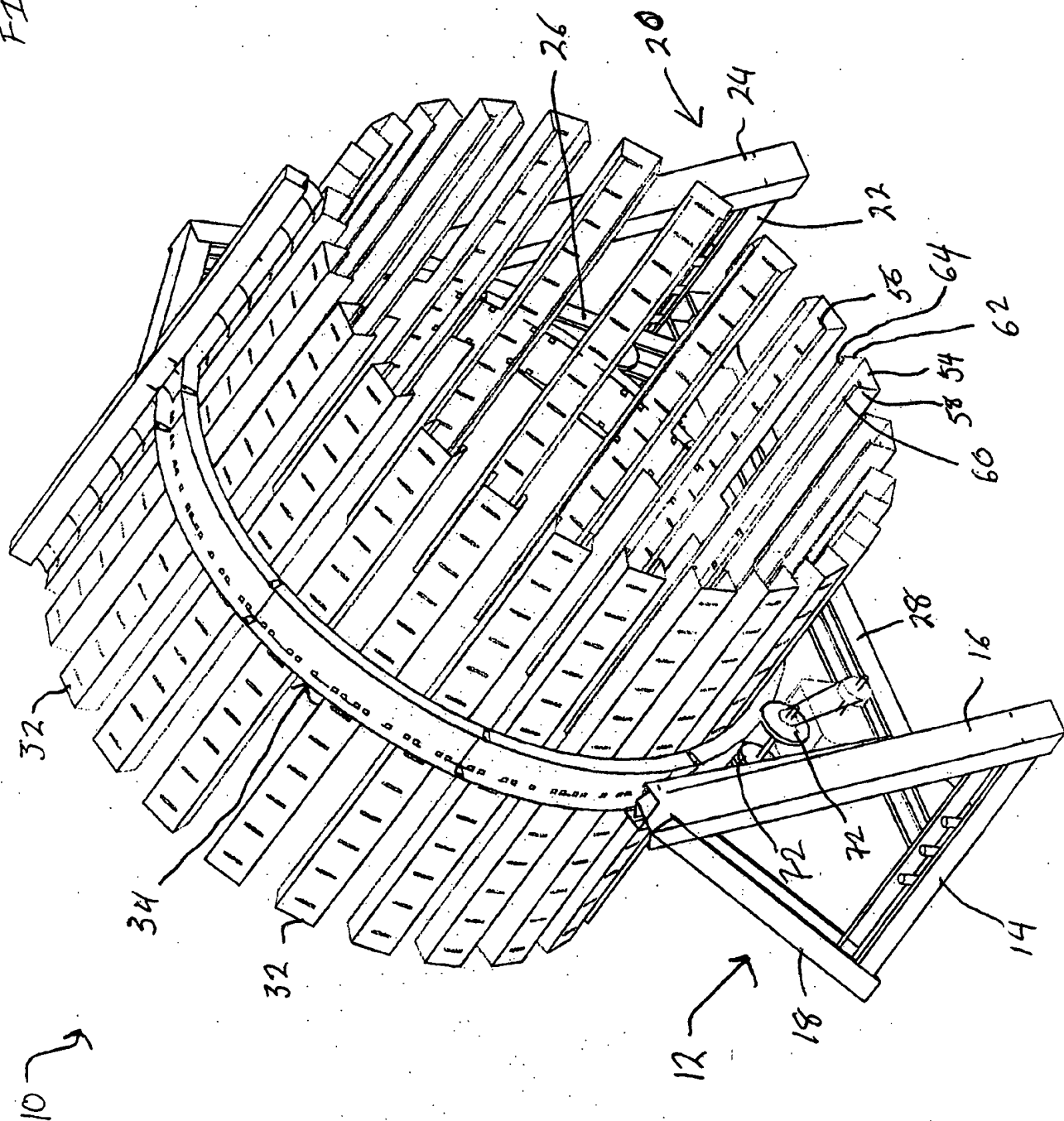


FIG 2



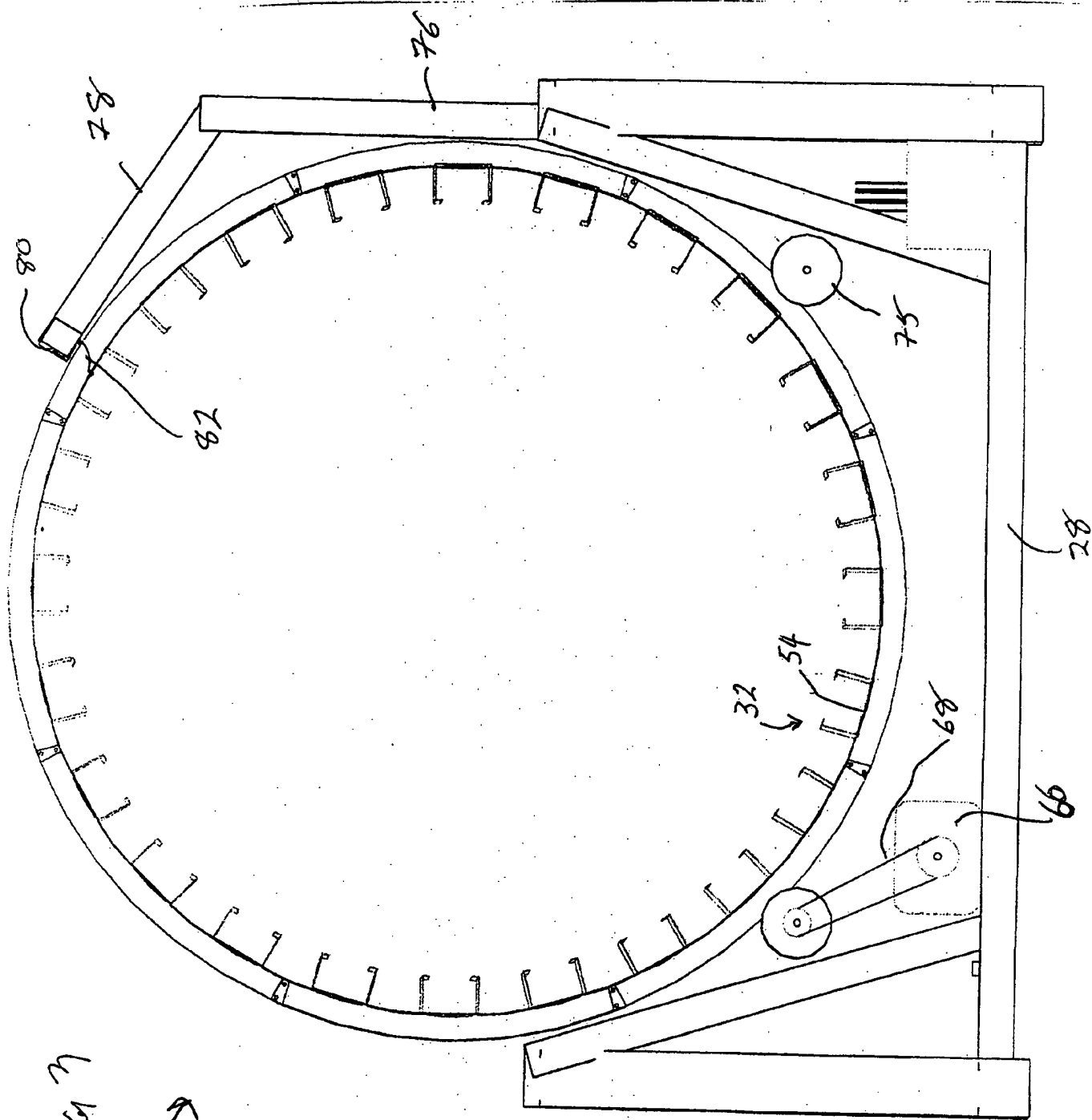


FIG 3

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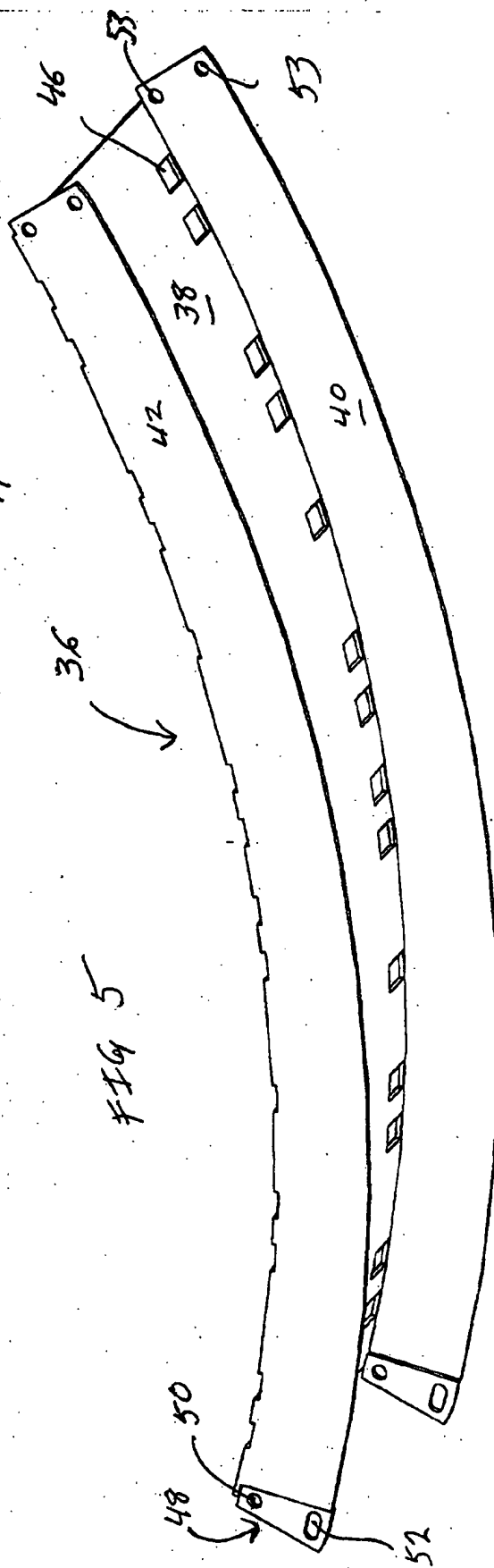
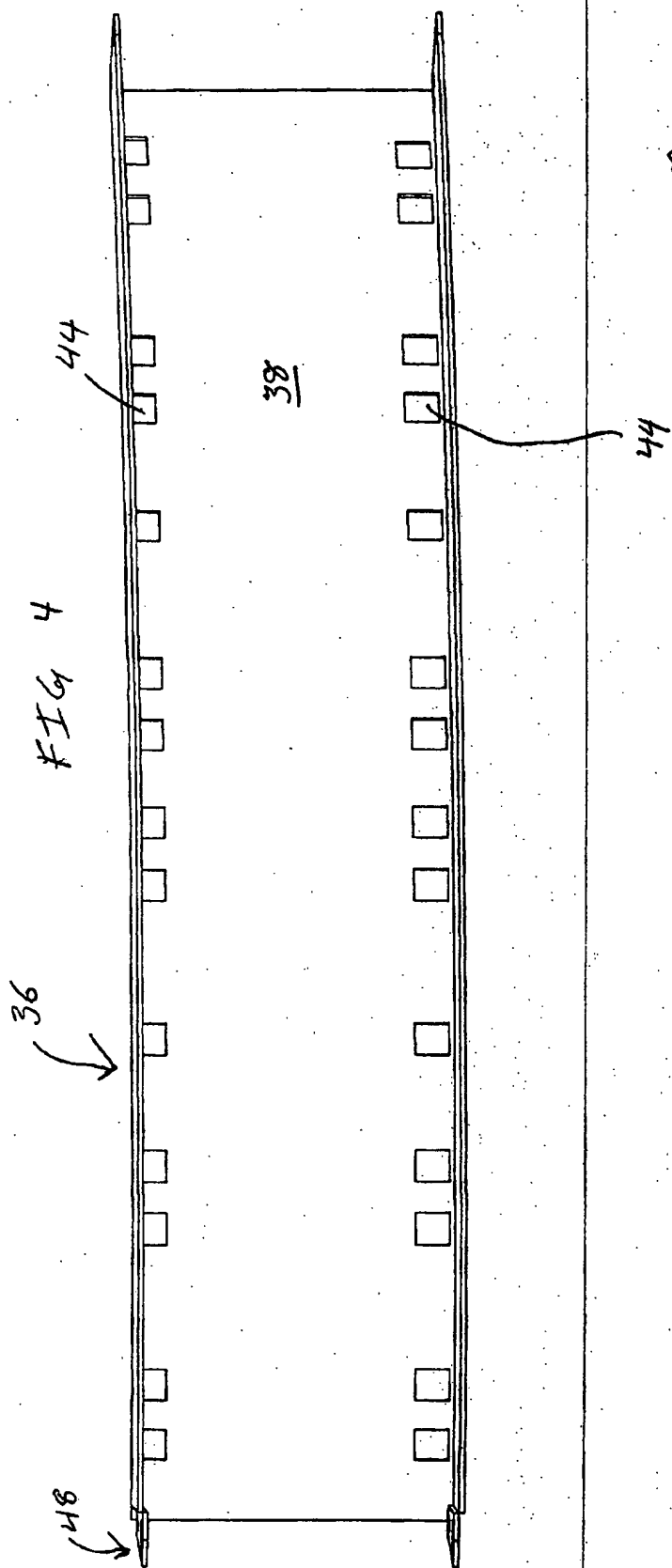


FIG 6

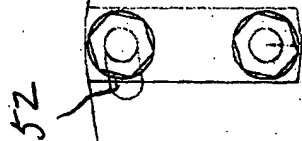


FIG 7

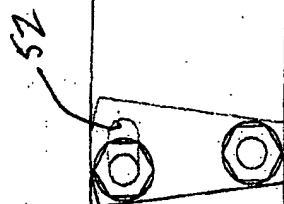


FIG 8

